CLAIMS:

22) A method for producing a lightweight starting stock for gun frames and gun components comprising:

a) mixing alloying elements into aluminum with the alloy composition containing 6.2 to 9.0 wt% Zn, 1.0 to 3.0 wt% Mg, 0 to 2.5 wt% Cu and 0.02 to 0.50 wt% of at least one grain refining element selected from a group consisting of Zr, Sc, Cr, Mn, Ti and Hf and casting said elements to provide a billet,
b) extruding said billet to provide starting stock,
c) forging said starting stock to provide a gun frame or gun component,
d) solution heat treating said gun frame or gun component to provide a solution heat treated gun frame or gun component,
e) quenching said gun frame or gun component to provide a quenched gun frame or gun component
f) artificial aging said gun frame or gun component to provide and artificially aged gun frame or gun component wherein said gun frame or gun component has a yield strength value of at least 80 ksi.

23) The method of claim 22 wherein said gun frame or gun component has a yield strength value of at least 90 ksi.

24) The method of claim 22 wherein secondary machining is performed on the forged gun frame or gun component.

25) A method for producing a lightweight starting stock for gun frames and gun components comprising:

a. mixing alloying elements into aluminum with the alloy composition containing 6.2 to 9.0 wt% Zn, 1.0 to 3.0 wt% Mg, 0 to 2.5 wt% Cu and 0.02 to 0.50 wt% of at least one grain refining element selected from a group consisting of Zr, Sc, Cr, Mn, Ti and Hf and casting said elements to provide a billet,
b. forging said billet to provide a gun frame or gun component,
c. solution heat treating said gun frame or gun component to provide a solution heat treated gun frame or gun component,
d. quenching said gun frame or gun component to provide a quenched gun frame or gun component
e. artificial aging said gun frame or gun component to provide and artificially aged gun frame or gun component wherein said gun frame or gun component has a yield strength value of at least 80 ksi.

26) The method of claim 25 wherein said gun frame or gun component has a yield strength value of at least 90 ksi.

27) The method of claim 25 wherein secondary machining is performed on the forged gun frame or gun component.

28) A method for producing a lightweight starting stock for gun frames and gun components comprising:

a. mixing alloying elements into aluminum with the alloy composition containing 6.2 to 9.0 wt% Zn, 1.0 to 3.0 wt% Mg, 0 to 2.5 wt% Cu and 0.02 to 0.50 wt% of at least one grain refining element selected from a group consisting of Zr, Sc, Cr, Mn, Ti and Hf and casting said elements to provide a billet,
b. extruding said billet to provide starting stock,
c. machining said starting stock to provide a gun frame or gun component,
d. solution heat treating said gun frame or gun component to provide a solution heat treated gun frame or gun component,
e. quenching said gun frame or gun component to provide a quenched gun frame or gun component
f. artificial aging said gun frame or gun component to provide and artificially aged gun frame or gun component wherein said gun frame or gun component has a yield strength value of at least 80 ksi.

29) The method of claim 28 wherein said gun frame or gun component has a yield strength value of at least 90 ksi.

30) The method of claim 28 wherein secondary machining is performed on the machined gun frame or gun component.

31) A method for producing a lightweight starting stock for gun frames and gun components comprising:

a. mixing alloying elements into aluminum with the alloy composition containing 6.2 to 9.0 wt% Zn, 1.0 to 3.0 wt% Mg, 0 to 2.5 wt% Cu and 0.02 to 0.50 wt% of at least one grain refining element selected from a group consisting of Zr, Sc, Cr, Mn, Ti and Hf and casting said elements to provide a billet,
b. extruding said billet to provide starting stock,
c. solution heat treating said extrusion to provide a solution heat treated extrusion,
d. quenching said extrusion to provide a quenched extrusion,
e. artificial aging said extrusion to provide an artificially aged extrusion wherein said extrusion has a yield strength value of at least 80 ksi,
f. machining said extrusion after the quenching or artificial aging step to provide a gun frame or gun component.

32) The method of claim 31 wherein said artificially aged extrusion has a yield strength value of at least 90 ksi.

33) A method for producing a lightweight starting stock for gun frames and gun components comprising:

a. mixing alloying elements into aluminum using the alloy families: Al-Zn-Mg-Cu, Al-Zn-Mg, Al-Cu-Li, Al-Si-Mg Al-Cu or Al-Cu-Mg and casting said elements to provide a billet,
b. extruding said billet to provide starting stock,
c. forging said starting stock to provide a gun frame or gun component,
d. solution heat treating said gun frame or gun component to provide a solution heat treated gun frame or gun component,
e. quenching said gun frame or gun component to provide a quenched gun frame or gun component
f. artificial aging said gun frame or gun component to provide and artificially aged gun frame or gun component wherein said gun frame or gun component has a yield strength value of at least 80 ksi.

34) The method of claim 33 wherein secondary machining is performed on the forged gun frame or gun component.

35) A method for producing a lightweight starting stock for gun frames and gun components comprising:

a. mixing alloying elements into aluminum using the alloy families: Al-Zn-Mg-Cu, Al-Zn-Mg, Al-Cu-Li, Al-Si-Mg Al-Cu or Al-Cu-Mg and casting said elements to provide a billet,
b. forging said billet to provide a gun frame or gun component,
c. solution heat treating said gun frame or gun component to provide a solution heat treated gun frame or gun component,
d. quenching said gun frame or gun component to provide a quenched gun frame or gun component
e. artificial aging said gun frame or gun component to provide and artificially aged gun frame or gun component wherein said gun frame or gun component has a yield strength value of at least 80 ksi.

36) The method of claim 35 wherein secondary machining is performed on the forged gun frame or gun component.

37) A method for producing a lightweight starting stock for gun frames and gun components comprising:

a. mixing alloying elements into aluminum using the alloy families: Al-Zn-Mg-Cu, Al-Zn-Mg, Al-Cu-Li, Al-Si-Mg Al-Cu or Al-Cu-Mg and casting said elements to provide a billet,
b. extruding said billet to provide starting stock,

c. machining said starting stock to provide a gun frame or gun component,
d. solution heat treating said gun frame or gun component to provide a solution heat treated gun frame or gun component,
e. quenching said gun frame or gun component to provide a quenched gun frame or gun component
f. artificial aging said gun frame or gun component to provide and artificially aged gun frame or gun component wherein said gun frame or gun component has a yield strength value of at least 80 ksi.

38) The method of claim 37 wherein secondary machining is performed on the machined gun frame or gun component.

39) A method for producing a lightweight starting stock for gun frames and gun components comprising:

a. mixing alloying elements into aluminum using the alloy families: Al-Zn-Mg-Cu, Al-Zn-Mg, Al-Cu-Li, Al-Si-Mg Al-Cu or Al-Cu-Mg and casting said elements to provide a billet,
b. extruding said billet to provide starting stock,
c. solution heat treating said extrusion to provide a solution heat treated extrusion,
d. quenching said extrusion to provide a quenched extrusion,
e. artificial aging said extrusion to provide an artificially aged extrusion wherein said extrusion has a yield strength value of at least 80 ksi,
f. machining said extrusion after the quenching or artificial aging step to provide a gun frame or gun component.

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REMARKS:

By the above amendments, the applicant has corrected errors with regard to the independent and dependent claims that had recited a high yield strength value in the independent claims and lower yield strength values in the dependent claims, thereby inadvertently reciting larger range in the dependent claims. Accordingly, the applicant has re-written the claims to the proper format.

In the replacement claims the applicant utilizes the correct format. The applicant has eliminated many of the claims, and in the proposed amended claims the applicant omits the term "may be" which fails to positively recite a step in the method. Instead, the applicant proposes a set of claims that positively recites a step whereby no machining is performed and a set of claims that recites a step where secondary machining is performed.

Throughout the claims, the yield strength range is narrowed in scope to levels of 80 ksi in the independent claims and 90 ksi in the concomitant dependent claims.